IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application. Please amend claims 1 and 5 and add new claims 9-17 as follows:

1. (Currently Amended) An adaptive noise reduction method including an adaptive filter for obtaining a signal approximate to a periodic signal to be reduced from a reference input pulse signal synchronous with said periodic signal to be reduced within a main input signal, and composition means for subtracting an output signal of said adaptive filter from said main input signal, in which an output signal of said composition means is fed back to said adaptive filter and said adaptive filter performs adaptation processing so that noise power of the output signal of said composition means may be minimum, [[wherein]] comprising the steps of:

providing a ring-shaped memory constituting said adaptive filter,

providing a read-address generator for generating read addresses of the ring-shaped memory, and

providing a write-address generator for generating write addresses thereof different from said read addresses [[are provided]], and

wherein relative phase of address offset between said read address and said write address is made to be variable.

2. (Original) An adaptive noise reduction method according to claim 1, wherein

the relative phase between said read address and said write address varies in accordance with a change in a period of said reference input pulse signal.

3. (Previously Presented) An adaptive noise reduction method according to claim 1, wherein said composition means subtracts the output signal of said adaptive filter from said main input signal through data interpolation means.

4. (Original) An adaptive noise reduction method according to claim 1, wherein the number of taps (the number of words) M of the ring-shaped memory constituting said adaptive filter has a relation of

$$M \geqq S \cdot TM$$

where S is a sampling frequency of said periodic signal to be reduced and TM is the maximum period that said reference input pulse signal can take.

5. (Currently Amended) An adaptive noise reduction apparatus including

an adaptive filter for obtaining a signal approximate to a periodic signal to be reduced from a reference input pulse signal synchronous with said periodic signal to be reduced within a main input signal and

composition means for subtracting an output signal of said adaptive filter from said main input signal, in which

an output signal of said composition means is fed back to said adaptive filter and said adaptive filter performs adaptation processing so that noise power of the output signal of said composition means may be minimum, comprising:

a ring-shaped memory constituting said adaptive filter,

a read-address generator for generating read addresses of said ring-shaped memory, and

a write-address generator for generating write addresses thereof different from said read addresses, wherein

relative phase of address offset between said read address and said write address is made to be variable.

6. (Original) An adaptive noise apparatus according to claim 5, wherein

the relative phase between said read address and said write address varies in accordance with a change in a period of the reference input signal.

7. (Previously Presented) An adaptive noise reduction apparatus according to claim 5, wherein

said composition means subtracts the output signal of said adaptive filter from said main input signal through data interpolation means.

8. (Original) An adaptive noise reduction apparatus according to claim 5, wherein

the number of taps (the number of words) M of the ring-shaped memory constituting the adaptive filter has a relation of

$$M \geqq S \cdot TM$$

where S is a sampling frequency of said periodic signal to be reduced and TM is the maximum period that said reference input pulse signal can take.

9. (New) An adaptive noise reduction method according to claim 2, wherein said composition means subtracts the output signal of said adaptive filter from said main input signal through data interpolation means.

10. (New) An adaptive noise reduction apparatus according to claim 6, wherein said composition means subtracts the output signal of said adaptive filter from said main input signal through data interpolation means.

11. (New) An adaptive noise reduction method according to claim 1, wherein adaptive coefficients are read from and written into respective specified addresses of the read addresses or write addresses within a predetermined timing within one period.

12. (New) An adaptive noise reduction apparatus according to claim 5, wherein adaptive coefficients are read from and written into respective specified addresses of the read addresses or write addresses within a predetermined timing within one period.

13. (New) An adaptive noise reduction apparatus according to claim 5, wherein the write-address generator moves data within the ring-shaped memory by one address at every one sampling clock.

14. (New) An adaptive noise reduction apparatus according to claim 5, wherein the read-address position where the ring-shaped memory is variable relative to the write-address position.

15. (New) An adaptive noise reduction apparatus according to claim 5, wherein the write-address position within the ring-shaped memory is variable relative to the read-address position.

16. (New) An adaptive noise reduction apparatus according to claim 5, wherein the read-address position and write-address position within the ring-shaped memory vary.

17. (New) An adaptive noise reduction apparatus according to claim 5, further comprising a counter receiving a sampling clock and a variable period pulse signal, the counter outputting a count value, and a timing generator generating predetermined timing pulse based upon the count value, the timing generator outputting the predetermined timing pulse to said read-address generator and said write-address generator